



ENERGY News

for the horticultural industry



HDC wins Carbon Trust funding for Energy Focus Group



The HDC has secured £30,000 funding from the Carbon Trust to set up an Energy Focus Group for growers of protected crops. The project, which will be known as GROWSAVE, will work with case study nurseries to implement and demonstrate how energy savings can be made.

"GROWSAVE is a natural extension of the energy training courses we have run previously", explains HDC Communications Manager Jenny Lang, *"One of the problems with our courses is that although we tell growers how to save energy, we don't practically demonstrate how to do it"* she adds. *"This is particularly important when changing the operation and settings of a climate control computer as many growers know the theory but don't have the confidence to make the changes on their own system".*

As part of GROWSAVE experts from FEC Services will work with two case study nurseries to identify areas where energy savings can be made. Changes will then be implemented and the resulting energy use and crop performance carefully monitored. Members of GROWSAVE will be invited to meetings at the host sites so they can see how the changes have been made.

"We will concentrate on the set-up and operation of the climate control computer" explains Chris Plackett of FEC Services, *"and our focus will be on the correct implementation of temperature integration and thermal screens control. Both of these technologies are well backed by recent HDC research results and growers know that they can be used to make savings. All we need to do now is demonstrate how to use them*

correctly so that energy savings and crop performance can be optimised".

A unique feature of GROWSAVE will be that the project will have its own dedicated website - www.growsave.co.uk. Growers signing up to the project will be able to access general energy saving information together with weekly updates on the progress of the case study sites. They will also be able to enter their own energy use information to compare their performance with the host nursery.

The project will start in late September. Full details of how to join are being sent to growers - but anyone wanting to join can either contact HDC or call FEC Services on 024 7669 6512. Alternatively email growsave@fecservices.co.uk and register your details.

Energy price update

Gas prices are averaging about 29p/therm (1.0p/kWh) for September and 44p/therm (1.50p/kWh) for winter 07. This is continuing the low gas price run which started earlier in the year and is now feeding through to electricity pricing.

The arrival of significant gas import capacity to the UK has switched longer-term market attention from UK-specific supply and demand issues to wider variables, including world oil prices and the supply situation in neighbouring markets.

Is your cold store leaking energy?

Energy losses are the unseen costs of any cold store and they are likely to impact on a grower's profitability even more in the future because of recent increases in electricity prices.

If an irrigation line springs a leak the chances are you'd fix it – but with water you have one major advantage because you can see where the leak is coming from. With energy in a cold store it is not quite so easy – or so you might think! But by using an Infra Red (IR) camera, energy losses can be easily spotted.

To show some of the common problems with cold stores Andrew Kneeshaw of FEC Services recently visited a typical store to carry a simple survey with an IR camera. His findings are revealing and at some times shocking.

"An IR camera is an excellent tool for illustrating the common areas where cold store energy efficiency can be improved" comments Andrew. "Whether you are storing carrots, onions, flowers or any other horticultural crops, heat gain through the structure and air leaks can be costing you money. The pictures below show IR camera images taken from inside and outside the store and they show examples of faults commonly found in many stores".

The IR camera gives images with the different colours showing the temperature gradient – the colder areas are shown in blue and warmer areas in red. If used inside, most of the cold store structure is blue, indicating that it is cold, whilst the problem spots show up as red or orange indicating they are warm. If used from the outside the colour gradient reverses, with the problem spots showing up as blue or green.

Energy waste can be occurring even though you might think all is well.



New EU regulation impacts on users of refrigeration, air conditioning and heat pump systems

The EU's new F Gas Regulation N842/2006 came into force on 4th July this year in an attempt to minimise the emission of HFC gases to the environment.

This new regulation imposes on 'operators' of equipment containing F gases – which are typically found in refrigeration and air conditioning equipment.

Compliance with the regulation requires regular testing of refrigeration and air conditioning equipment (as well as heat pumps) and other similar equipment using F gases.

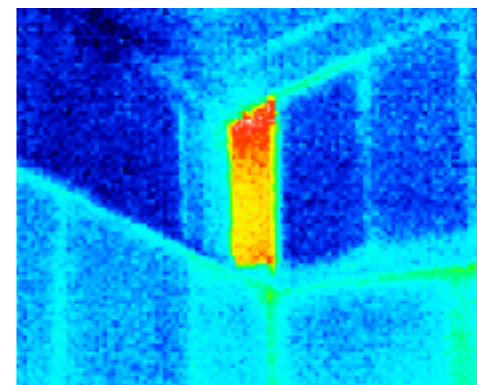
More details of the regulation can be found at <http://www.acrib.org.uk/MG70LH18285>.

Defra has also produced some useful information including a calculator which helps you identify how much F gas is contained in your refrigeration systems and how often they need testing.

This information can be obtained from <http://www.defra.gov.uk/environment/climatechange/uk/fgas/index.htm>.



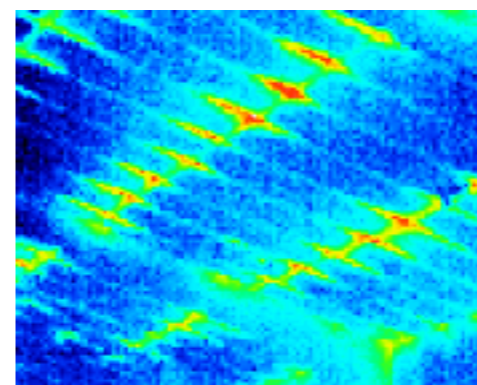
Insulation gap



Here a steel beam is providing a 'hot bridge' to the warmer conditions outside. The beam is at 15°C whereas the rest of the store is at 4°C. This is a common mistake when insulating existing buildings to convert them into cold stores.

Once identified it's a relatively simple job to insulate and remedy the fault.

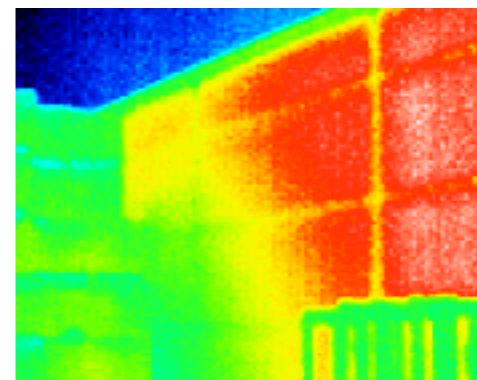
Roof



This is where most structural heat gain often occurs - especially on a sunny day. Here the insulation looks fairly sound, although hot spots show up at the joints between the insulation panels. This highlights the attention to detail that is required during cold store construction.

Good insulation is absolutely key and it must not be overlooked.

Solar gain



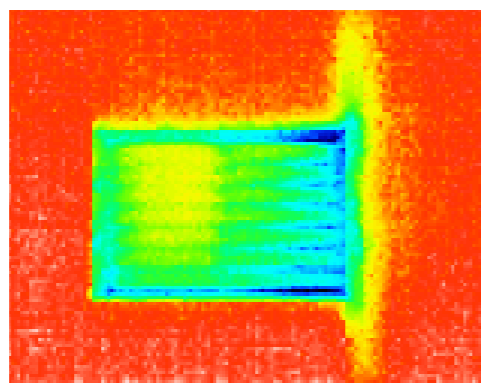
To see the effects of solar gain the IR image was taken from outside the store. Even though it was a cloudy day in May, the image shows the cladding is at 17°C on the right hand side. In contrast the left hand side – which is in the shade – is only 13°C. This shows the impact solar gain – even on the most unlikely days. Light colours on the outside of buildings help to reflect solar radiation but this can conflict with planning requirements.

These examples show how an IR camera can identify the hidden culprits that are wasting energy in your cold store and increasing the costs of produce storage. In most cases the solutions are simple and will give quick paybacks. Remedial work could save up to 20% in total energy use. Whether it is repairing insulation, sealing gaps around doors or carrying out simple repairs and maintenance you will see the rewards for many years to come.

So, even though the cost of an IR camera puts them out of the reach of the grower, having a survey done will help to reduce costs and ensure your produce is stored at the required temperature.

If you would like to know more about having an IR survey done for your cold stores call FEC Services on 024 7669 6512 or email info@fecservices.co.uk.

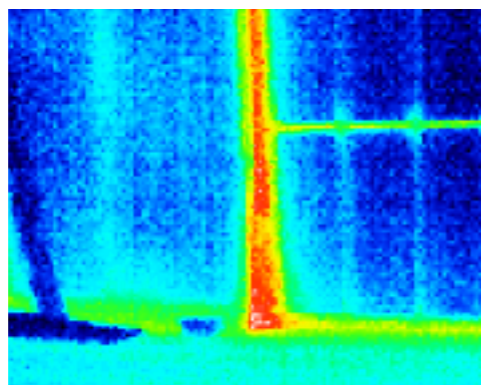
Louvres



These are not the easiest areas to seal because they are there to provide air flow. This IR picture was taken from outside the store. The right hand side of the louver is at 7°C whereas the left hand side is at 12°C. Further investigation revealed that dirt/debris and a dislodged brush seal were causing the problem – and after a simple repair the problem was rectified.

Make sure louvres are well-fitted and shut tight.

Doors



Taken from the inside, this IR image shows a hot spot along the gap between the door and the store structure. The main body of the door is 10°C compared to 16°C at the hot spot. In this case there was an obvious gap between the door and the frame. At the very least all doors should have close fitting brush seals even if they have to be replaced every year.

The absence of a chink of light does not guarantee low heat loss.

Better economics for renewable energy in the UK?

Renewable energy could boom in Britain under planning and energy policy changes just announced by the Government making it the second most attractive country for investment in clean energy, say analysts Ernst & Young.

Proposed changes to the way renewables are supported through the UK Government's 'Renewables Obligation' and a more streamlined planning system could make Britain equally as attractive as Spain and India - but still less of a lure for renewable energy than the United States, the consultancy said. The UK is set to overtake Germany in Ernst & Young's league table of most attractive countries in which to invest in clean technologies.



New project investigates advanced air heating systems for UK greenhouses

A new four year HDC project (PC 278) will investigate how air heating systems can contribute to energy savings and improved crop quality in UK greenhouses. The work, which is a follow on from the recommendations of a recently completed investigation into closed greenhouse systems (PC 256), will be carried out on a leading UK tomato nursery and will be managed by FEC Services.

Scheme for green electricity tariff accreditation

Those not wanting to put up their own wind farm, can always choose to buy electricity on a 'green' energy tariff if they want to be environmentally friendly. But it turns out that some 'green' tariffs are greener than others.

To give consumers more information a rating scheme for green electricity tariffs was proposed by Ofgem on 4th June. It is intending to issue revised guidelines in September, but a date has yet to be set for the scheme's introduction.

The scheme will be voluntary and paid for by suppliers. Tariffs would be given a rating of one to five stars. Three of the stars will be awarded for the carbon emissions a tariff saves, one for the efficiency of the main source of electricity generation and one for any 'additional environmental benefits'. There are three main types of tariff that might qualify for a rating: those which supply electricity from renewables; those which supply it from 'low-carbon' sources; and those that offset a customer's emissions. Ofgem says it expects suppliers to demonstrate that renewables-based tariffs achieve *"an additional carbon benefit that goes beyond their legal obligations."* If they fail to do something extra, they will get a one-star rating.



Biomass heating opportunities highlighted at BOPP/HDC Seminar

Two speakers at the HDC funded British Ornamental Plant Producers (BOPP) Technical Seminar in June highlighted how biomass heating systems might play a major role in greenhouse heating in the future. However, they both warned that biomass heating is still in it's infancy in the UK and practical installations are not that straightforward at the moment.

Tim Pratt of FEC Services presented information resulting from a recently completed HDC study into the feasibility and economics of biomass heating and Richard Harnett, MD of Kernock Park Plants, gave delegates an insight into his own experiences of installing a 3MW biomass boiler on his nursery in Cornwall.

Tim went on to explain how the HDC study (PC 265) had examined the issues which any grower who looks at biomass might have to consider. These included biomass type and its availability and cost. He then went on to discuss how the size of biomass boiler should be selected and how it could be integrated with any existing equipment that is being used on the nursery.

The main conclusions from the HDC study were that adopting biomass systems can give significant energy and cost savings. Also biggest is not always best – in fact

optimum savings can be achieved by using a modestly sized boiler linked to a hot water store.

Richard Harnett's practical experiences did much to reinforce the messages given by Tim. However, some additional areas of interest were also mentioned. These included the fact that the biomass supply industry in the UK – for both fuel and equipment – did not understand greenhouses or their heating systems. This makes the process of delivering a project more difficult and necessitates the need for good project management.

Richard also explained that day to day running of the biomass boiler was not straightforward, and labour requirements were far greater than those needed for traditional gas or oil fired equipment. Having good staff was therefore an essential part of a successful project.

To conclude Richard highlighted that biomass heating does not give fast returns – calculations showed his project would pay-back in around six years. He added that those who are going to make use of biomass technologies should make the most of the PR benefits and tell the world about it.

Copies of the presentations and final HDC report for PC 265 are available from HDC.



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